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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/648,340

08/27/2003

Kiyoshi Ogishima

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5339

23117

7590

04/20/2005

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EXAMINER

PARKER, KENNETH

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/648,340

Applicant(s)

OGISHIMA ET AL.

Examiner

Kenneth A. Parker

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2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-19 is/are allowed.
- 6) ☒ Claim(s) 1,2,4-8 and 10-13 is/are rejected.
- 7) ☒ Claim(s) 3 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/27/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 4-8, 10-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Song 6710837.

The reference shows regarding claim 1. A liquid crystal display device comprising a first substrate 100 , a second substrate 200, and a vertical alignment type liquid crystal layer including liquid crystal molecules having negative dielectric anisotropy disposed between the first substrate and the second substrate (column 4, lines 1-20), the device having a plurality of picture-element regions each defined by a first electrode 10 placed in the first substrate on the side facing the liquid crystal layer and a second electrode 20 placed in the second substrate to oppose to the first electrode via the liquid crystal layer , in each of the plurality of picture-element regions, the liquid crystal layer having a plurality of liquid crystal regions different in the direction in which liquid crystal molecules tilt when a voltage is applied between the first electrode and the second

electrode (the combination of slit patterns and protrusions gives different regions with different tilts), wherein at least one of the first substrate and the second substrate has a light-shield layer overlapping at least part of boundary region defined as regions separating the plurality of liquid crystal regions from each other (shown in figure 11), and the at least part of boundary region overlapping the light-shield layer is a region permitting liquid crystal molecules surrounding the region to tilt so that ends of the liquid crystal molecules closer to the substrate having the light-shield layer go away from the region when a voltage is applied between the first electrode and the second electrode (since the light shield is in the region where the end of the liquid crystal goes up from, the moving up of the end can be construed as moving "away" from the region).

The reference shows regarding claim 2. The liquid crystal display device of claim 1, wherein the light-shield layer is placed with a predetermined spacing from the liquid crystal layer (predetermined here is interpreted not to imply a specific distance, only a physically set difference. Therefore being predetermined is inherent, as the thickness is physically set.).

The reference shows regarding claim 4. The liquid crystal display device of claim 1, wherein at least one of the first substrate and the second substrate has at least one protrusion having a slant side 55 formed on the surface facing the liquid crystal layer, and the direction in which liquid crystal molecules tilt in each of the plurality of liquid crystal regions is defined by orientation-regulating force of the at least one protrusion

(inherent).

The reference shows regarding claim 5. The liquid crystal display device of claim 1, wherein at least one of the first electrode and the second electrode has at least one opening (4), and the direction in which liquid crystal molecules tilt in each of the plurality of liquid crystal regions is defined by an inclined electric field generated at an edge portion of the at least one opening when a voltage is applied between the first electrode and the second electrode (inherent).

The reference shows regarding claim 6. The liquid crystal display device of claim 1, wherein at least one of the first substrate and the second substrate has at least one protrusion having a slant side formed on the surface facing the liquid crystal layer, at least one of the first electrode and the second electrode has at least one opening (both shown in figure 5), and the direction in which liquid crystal molecules tilt in each of the plurality of liquid crystal regions is defined by orientation-regulating force of the at least one protrusion and an inclined electric field generated at an edge portion of the at least one opening when a voltage is applied between the first electrode and the second electrode (inherent function).

The reference shows regarding claim 7. The liquid crystal display device of claim 1, wherein the first substrate further includes switching elements (tft's listed in column 2, lines 43-50) respectively placed to correspond to the plurality of picture-element

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regions, and the first electrode comprises a plurality of picture-element electrodes (at same as above) respectively placed for the plurality of picture-element regions and switched with the switching elements, and the second electrode comprises at least one counter electrode opposed to the plurality of picture-element electrodes (inherent- a voltage differential requires a second electrode opposite).

The reference shows regarding claim 8 met as described above with respect to claim 1, however lacks a first liquid crystal region of which the retardation value for light incident on the liquid crystal layer obliquely from the normal to the liquid crystal layer increases with rise of an applied voltage and a second liquid crystal region of which the retardation value first decreases and then increases, wherein the device comprises a light-shield layer selectively shading the first liquid crystal region when the device is observed in a direction oblique from the normal to the display plane. The light shield is shown at the disclination regions which are the region boundaries, but it is unclear whether the change in retardation happens as claimed. It appears as though this function should be inherent, as the structure is the same as applicants protrusions and slits, so the retardation behaviour should be the same.

The reference shows regarding claim 10. The liquid crystal display device of claim 8, wherein at least one of the first substrate and the second substrate has at least one protrusion having a slant side formed on the surface facing the liquid crystal layer, and the direction in which liquid crystal molecules tilt in each of the plurality of liquid crystal

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regions is defined by orientation-regulating force of the at least one protrusion (see discussion above re claim 4).

The reference shows regarding claim 11. The liquid crystal display device of claim 8, wherein at least one of the first electrode and the second electrode has at least one opening, and the direction in which liquid crystal molecules tilt in each of the plurality of liquid crystal regions is defined by an inclined electric field generated at an edge portion of the at least one opening when a voltage is applied between the first electrode and the second electrode (see discussion above re claim 5).

The reference shows regarding claim 12. The liquid crystal display device of claim 8, wherein at least one of the first substrate and the second substrate has at least one protrusion having a slant side formed on the surface facing the liquid crystal layer, at least one of the first electrode and the second electrode has at least one opening, and the direction in which liquid crystal molecules tilt in each of the plurality of liquid crystal regions is defined by orientation-regulating force of the at least one protrusion and an inclined electric field generated at an edge portion of the at least one opening when a voltage is applied between the first electrode and the second electrode (see discussion above re claim 6).

The reference shows regarding claim 13. The liquid crystal display device of claim 8, wherein the first substrate further includes switching elements respectively placed to

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correspond to the plurality of picture-element regions, and the first electrode comprises a plurality of picture-element electrodes respectively placed for the plurality of picture-element regions and switched with the switching elements, and the second electrode comprises at least one counter electrode opposed to the plurality of picture-element electrodes (see discussion above re claim 7).

Allowable Subject Matter

Claims 14-19 are allowed.

Claims 3 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: None of the prior art taught or suggested the device as claimed where the a light-shield layer overlapping at least part of regions in which liquid crystal molecules tilt in directions substantially parallel to the polarization axes of the pair of polarizing plates.

Election / Restriction

Applicant's election without traverse of group 3 in the reply filed on 1/14/2005 is acknowledged.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Colgan 6400440.

Suzuki et al 6446293

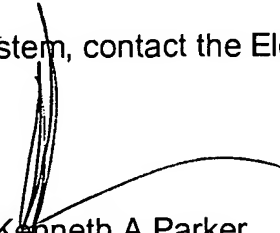
Huang 6567139

6710837 6400440.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth A. Parker whose telephone number is 571-272-2298. The examiner can normally be reached on M-F 10:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kenneth A Parker
Primary Examiner
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